

NHS WALES Estates and Facilities Alert



Llywodraeth Cymru
Welsh Government

Date: 4 July 2016

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Metal waste pipes used for the disposal of laboratory solutions and reagents containing sodium azide (NaN₃)

To: Chief Executives, LHBs
Chief Executives, NHS Trusts
NHS Wales Shared Services Partnership - Contractor Services

A list of people who need to have early sight of this information is given in the Alert

The content of Estates and Facilities Alerts is agreed between staff representatives from the four NHS administrations and issued throughout the United Kingdom. The Alert is endorsed by the Welsh Government as being relevant to NHS Wales and is issued by:

Neil Davies, Director, Specialist Estates Services, NHS Wales Shared Services Partnership

For advice see details on the alert

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Alerts are available in full text at:

within NHS Wales: <http://howis.wales.nhs.uk/sites3/page.cfm?orgid=254&pid=64173>

outside NHS Wales: <http://www.wales.nhs.uk/sites3/page.cfm?orgid=254&pid=81844>

Estates and Facilities Alert



Ref: EFA/2016/003

Issued: 04 July 2016

Valid to: 04 July 2022



Metal waste pipes used for the disposal of laboratory solutions and reagents containing sodium azide (NaN_3)

Summary

Sodium azide solutions disposed to waste through metal waste pipes may form metal azide reaction products. These products may accumulate in the pipes and explode if subjected to heat or mechanical shock, e.g. plumbing work. The risk of explosion may remain after the use of sodium azide solutions has ceased.

Action

- Identify metal waste pipes (e.g. containing copper, lead, tin, zinc) used for disposal of sodium azide containing solutions / reagents from laboratory equipment or analysers, either currently or in the past
- Alert laboratory and maintenance staff such as plumbers to the hazards involved in working on these pipes and prohibit maintenance work until the pipes have been risk assessed. Label pipes and drains (including those used in the past) prominently with, "CAUTION may contain explosive metal azide products".
- Risk assess the effect that sodium azide solution disposal has had on these pipes. As part of this assessment consideration should be given to (this list is not exhaustive):
 - Have the manufacturer disposal guidelines been followed?
 - Have local hazardous waste disposal guidelines been followed?
 - Have the pipes been flushed with water regularly?
 - Is there evidence that a regular decontamination of pipework has taken place?
 - How regularly and in what quantity has solution been disposed down this pipework?
 - Design of the drainage manifold / pipework
 - Do any of the waste pipes or fittings contain metals such as copper, lead, tin or zinc?
 - Presence of any threaded sections between joints and fittings (where metal azides might accumulate and be difficult to decontaminate effectively)
- Risk assessment will dictate what further actions and further control measures are needed. These may include one of or a combination of the following:
 - No action required
 - Modify solution disposal procedures. Ensure sodium azide containing solutions are disposed of in accordance with manufacturer's instructions and local hazardous waste disposal guidelines.
 - Where sodium azide solutions can be disposed to waste, the accumulation of reaction products may be minimised by:
 - flushing with copious amounts of water AND
 - introducing a regular decontamination procedure

- Decontaminate any pipes identified with potential for metal azide build up according to the NIOSH procedures¹.
 - In high risk situations the Health & Safety Executive (HSE) recommend that advice is sought from a specialist explosives contactor and this may ultimately involve the safe removal and disposal of the pipework
- As a further preventative measure consideration should be given to using azide-free reagents and non-metal waste pipes and fittings.

Action by

- Estates Managers
- Laboratory staff

Deadlines for action

Actions underway: 18 July 2016

Actions complete: 01 December 2016

Device details [optional]

Metal waste pipes used for the disposal of laboratory solutions and reagents containing sodium azide (NaN_3)

Problem / background

- Many clinical laboratory reagents contain low concentrations of sodium azide, such as used for chemistry, coagulation, haematology and immunology analysers. Sodium azide is also used as a chemical preservative for samples and stock solutions in hospitals and laboratories.
- Dilute Sodium azide is safe to use in these reagents; however, when flushed down metal waste pipes (e.g. containing copper, lead, tin, zinc) it may react with the metal to form potentially explosive reaction products, e.g. copper azide. These products can build up and remain in the pipe work for a long time and heat or mechanical shock can trigger an explosion.
- An incident has been reported in which a copper waste pipe from a blood analyser exploded while a plumber was working on it, resulting in serious injury. Investigation revealed that a low concentration sodium azide flush solution had been used regularly with the analyser and disposed to waste through copper pipe contrary to the reagent manufacturer's instructions. The solution had not been used for over a year but the reaction product remained in the pipe and handling it was sufficient to trigger the explosion.
- Decontamination procedures are given by the National Institute for Occupational Safety and Health (NIOSH) ¹. Although decontamination will reduce the risk of explosion the system must still be treated with caution. Work should be carried out using appropriate Personal Protective Equipment (PPE) such as gloves and eye protection.

Manufacturer contacts

Enquiries about specific sodium azide containing laboratory solutions & reagents should be directed to the relevant manufacturer or supplier.

Distribution

Estates Managers, Risk Managers, Laboratory staff, Health & Safety

References [optional]

1. DHHS (NIOSH) Publication Number 78-127, Current Intelligence Bulletin 13: Explosive Azide Hazard, August 16, 1976 at http://www.cdc.gov/niosh/docs/1970/78127_13.html

Enquiries

The above sections of this Alert were compiled by Health Facilities Scotland and distributed nationally without modification.

If you have enquiries about this notice, contact appropriate Regional Office, quoting reference number found at the top of this alert.

England

Enquires should quote reference number EFA/2016/003 and be addressed to:-

Mb-defects&failures@dh.gsi.gov.uk

Reporting adverse incidents in England

Defects or failures should be reported on this system: <http://efm.hscic.gov.uk/>

The web-based D&F reporting system is managed by the NHS and Social Care Information Centre on behalf of the Department of Health. For further information on this system, including obtaining login details, please contact the efm-information Helpdesk. Tel 0300 303 5678.

Northern Ireland

Enquiries and adverse incident reports in Northern Ireland should be addressed to:

Northern Ireland Adverse Incident Centre, CMO Group,
Department of Health, Social Services and Public Safety

Tel: 028 9052 3868 Fax: 028 9052 3900

Email: niaic@health-ni.gov.uk

www.dhsspsni.gov.uk/niaic

Reporting adverse incidents in Northern Ireland

Please report directly to NIAIC using the [forms on our website](#).

Scotland

Enquiries and adverse incident reports in Scotland should be addressed to:

Incident Reporting and Investigation Centre, Health Facilities Scotland, NHS National Services
Scotland

Tel: 0131 275 7575 Fax: 0131 314 0722

Email: nss.irc@nhs.net

Reporting adverse incidents in Scotland

NHS Boards and Local Authorities in Scotland – [report to Health Facilities Scotland](#).

Contractors such as private hospitals carrying out NHS work and private care homes that accept social work funded clients – [report to Health Facilities Scotland](#).

Private facilities providing care to private clients report to the [Care Inspectorate](#) and [MHRA](#).

Wales

Enquiries and adverse incident reports in Wales should be addressed to:

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